PMA 1 SHELL HEATER FAILURE

Advisory:
PMA1 Htr[X] B(A) Faild

User Notification

PCS NODE 1: TCS
NODE1: TCS
'PMA1'
sel PMA1 Htr[X]B(A)

Health Stat - Faild

PCS NODE 1: TCS
NODE1: TCS
'PMA 1'

Attention symbol appears next to PMA1 Htr[X]B(A)

Nominal Stage Config:
nav NODE 1: TCS
NODE1: TCS
'PMA1'
PMA1 Htr [X]B Availbty - Ena Opr
PMA1 Htr [X]A Availbty - Ena BU
RPCM N1RS2C
RPC 1, 2,14, 16 Close Command - Ena
RPCM N1RS1C
RPC 1, 14, 15, 16 Close Command - Ena

Nominal Assembly Config
During Pre-Ingress Warmup, Ingress, and Post-Egress Dryout, the heater availability will be variable (limited by power and zone temperature priorities). This procedure accounts for these periods as well as the nominal

1 Check Heater Failure Flags

PCS NODE1: TCS
NODE1: TCS
'PMA1'

- sel PMA1 Htr[X]B(A)
- Determine condition via failure flags:

Availbty - Inh and Cmd Stat - On	87
Hi Lim Violatn - True	5
Lo Lim Violatn - True	63
Temp Snsr Stat - Faild	2
RPC Position - Op and Cmd Stat - On	47
RPC Position - Cl and Cmd Stat - Off	19
RPC Position - Cl and Availbty - Inh	11
RPC - Trip	57

2 All B(A) Temp Sensors failed?
No → 92
Yes →

3 Possible loss of MDM Card N1-2 A02 (N1-1 A02).

4
- Perform MDM IO Card Failure (ISS MAL: C&DH)
- √**MCC-H** for heater reconfiguration.

1

5 Temp >Temp Snsr Failure Upper Limit? (1)
No → 6 Transient failure. → 7
- Continue nominal operations.

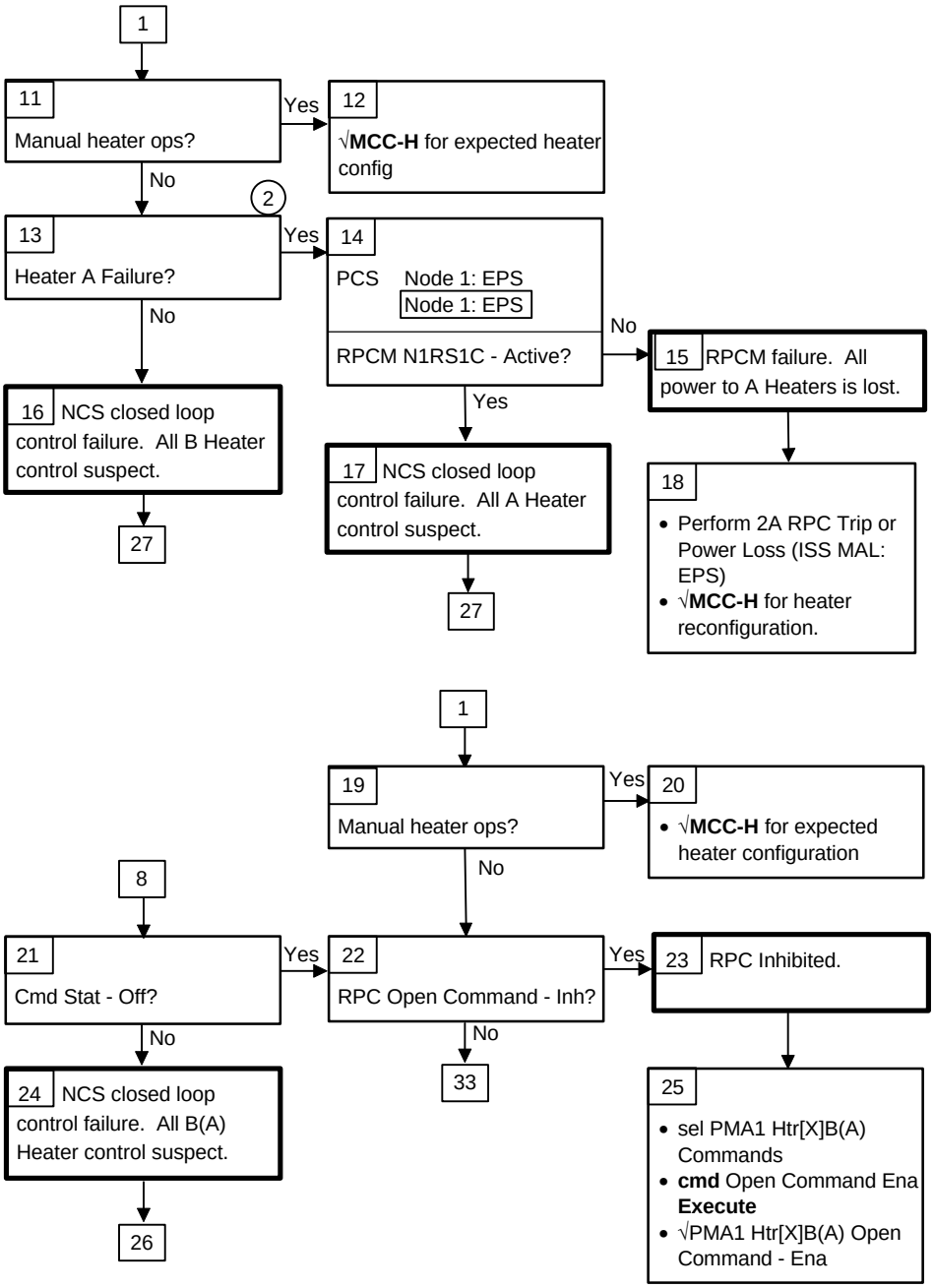
Yes →

8 RPC Position - Op?
→ 9 Possible Transient Hot Thermal Environment. (2) → 10
- √**MCC-H** for further action.

→ 21

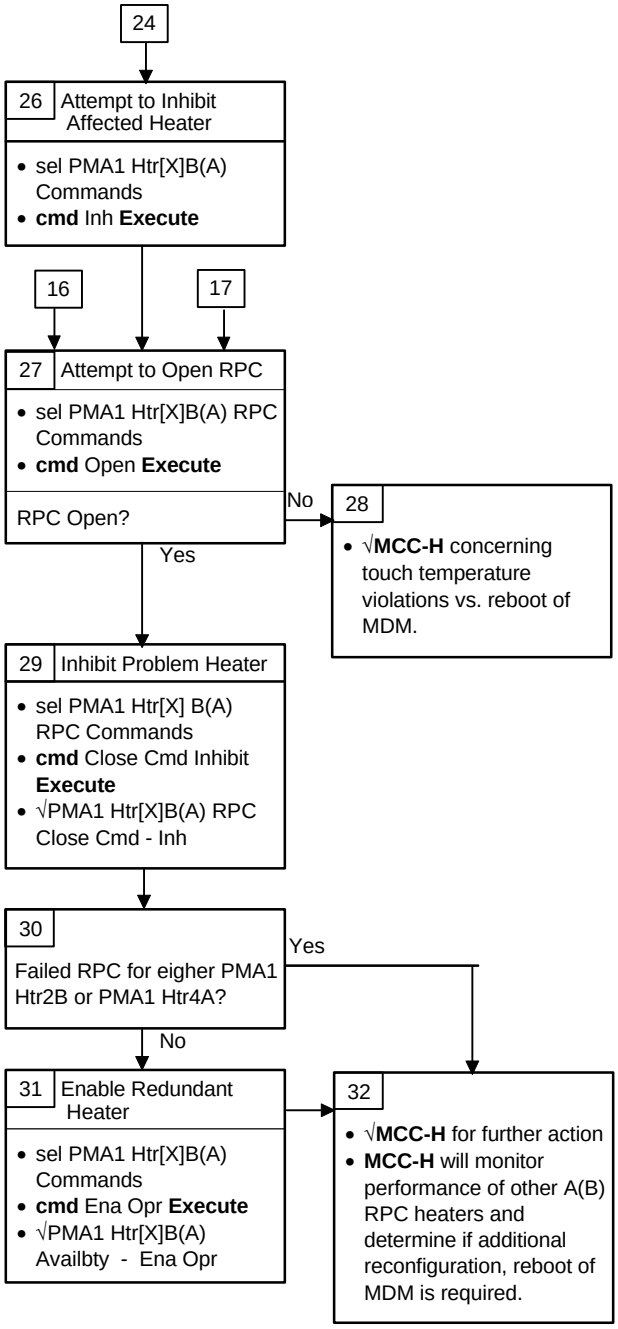
(1) Failure Upper Limit band may be set too small. **MCC-H** may unlink a change to Failure Upper Limit.

PMA 1 SHELL HEATER FAILURE (Cont)

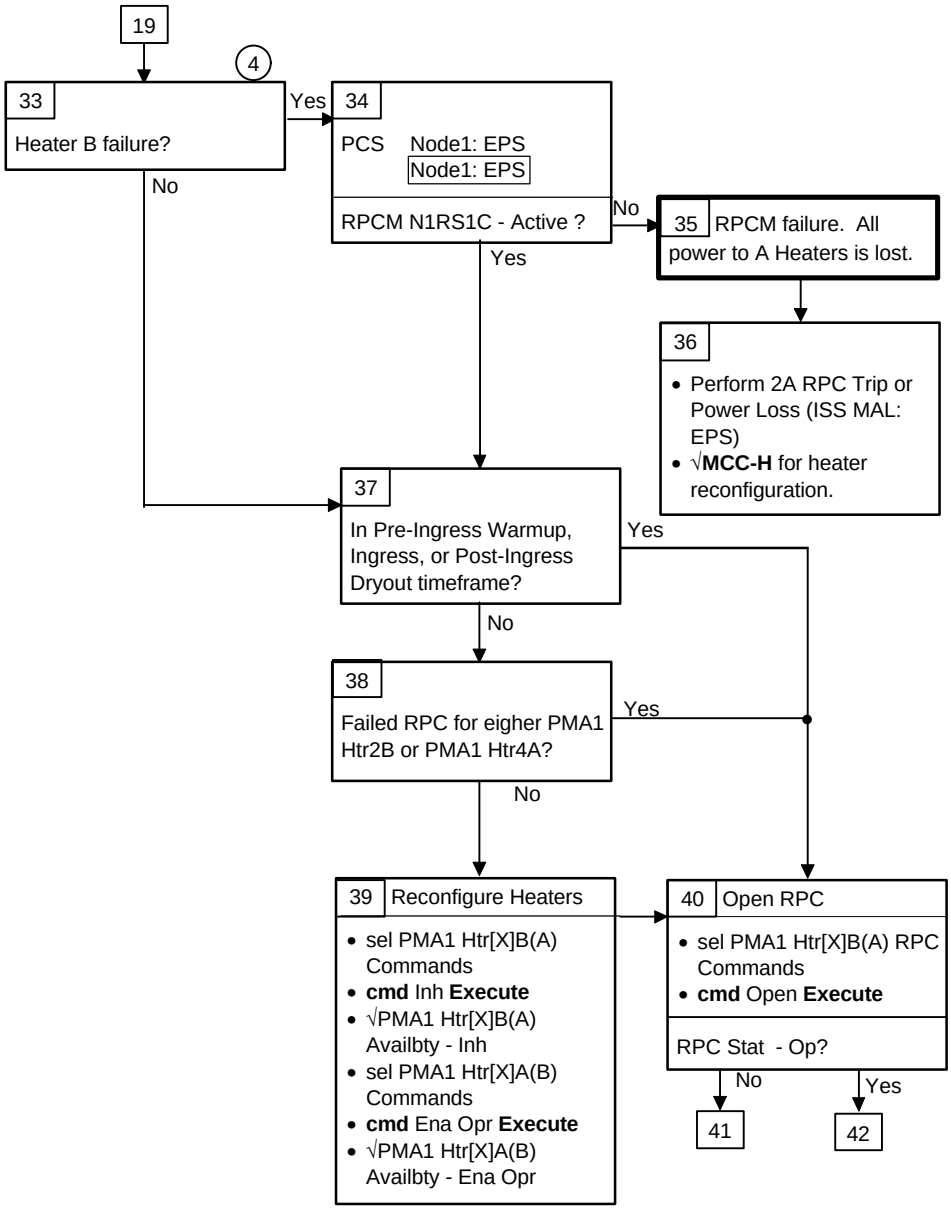


(2) The A Heaters are connected to the same RPCM as MDM N1-1. The MDM Failure malfunction will be worked in that case. The B Heaters are not connected to the same RPCM as MDM N1-2, therefore it is possible that the heater configuration problem could be detected before the RPCM failure.

PMA 1 SHELL HEATER FAILURE (Cont)

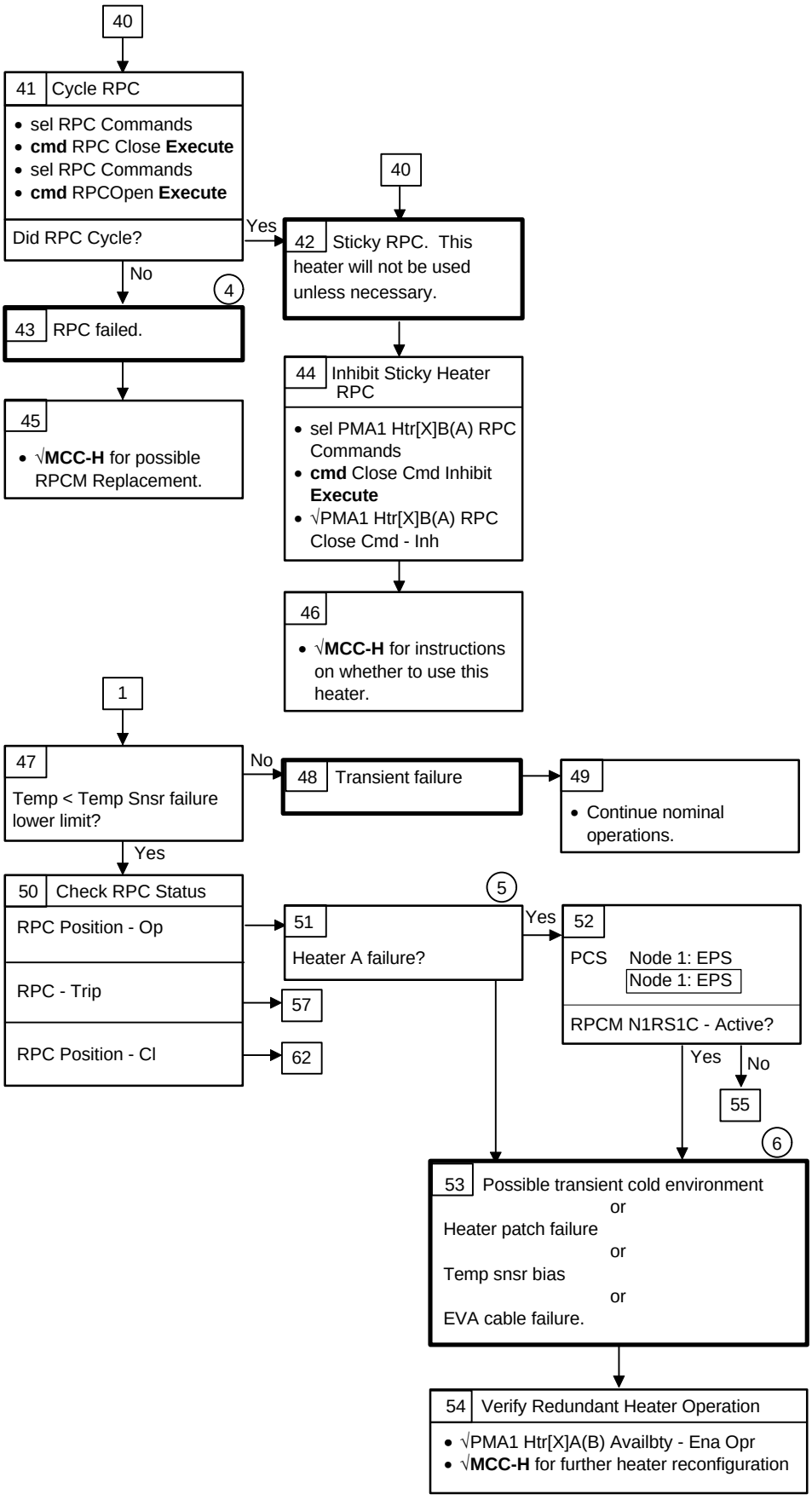


PMA 1 SHELL HEATER FAILURE (Cont)



4
The B Heaters are connected to the same RPCM as MDM N1-2. The MDM Failure malfunction will be worked in that case. The A heaters are not connected to the same RPCM as MDM N1-1; therefore, it is possible that the heater configuration problem could be detected before the RPCM failure.

PMA 1 SHELL HEATER FAILURE (Cont)

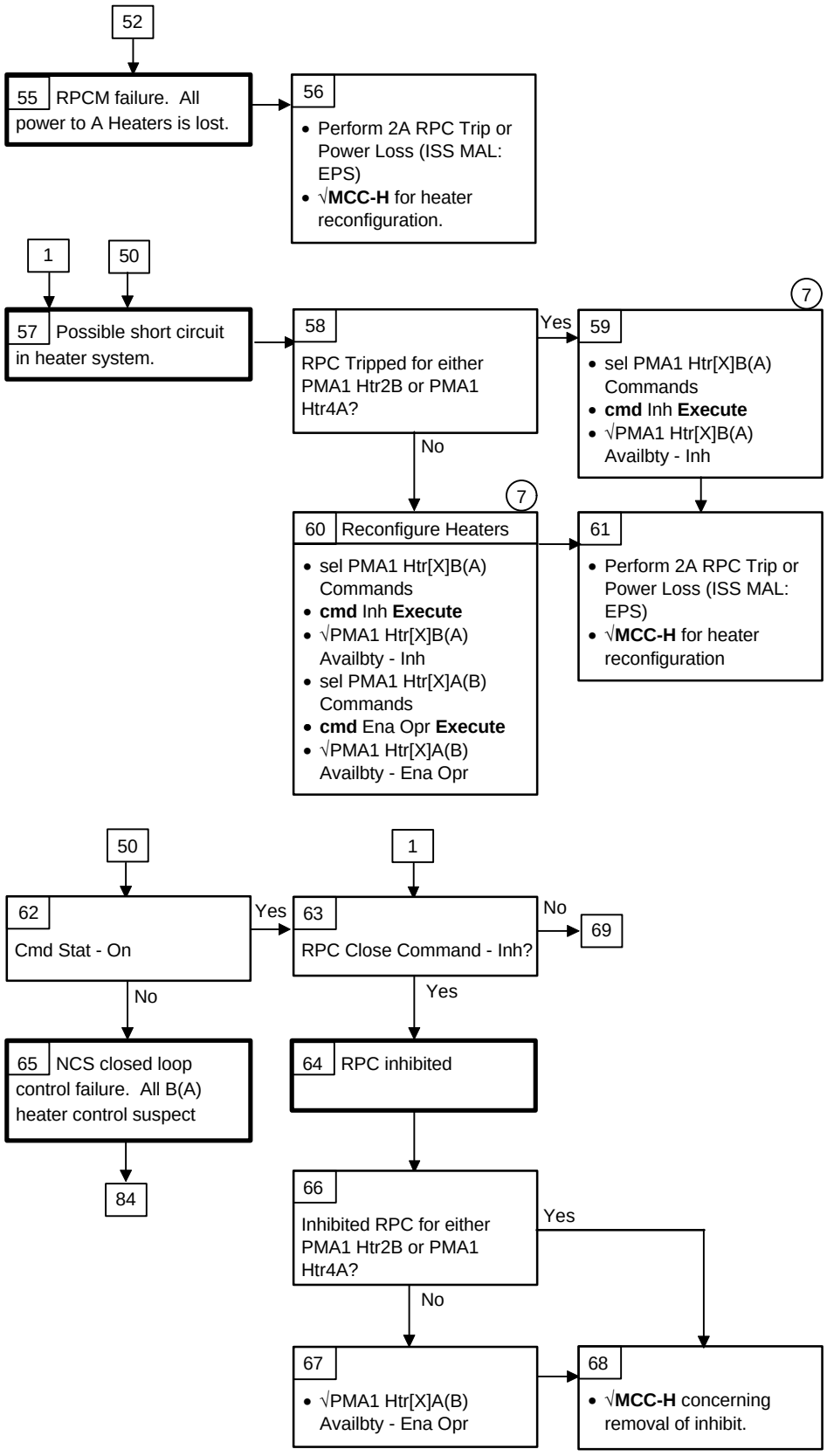


(4) **MCC-H** will evaluate the possibility of touch temperature violations and consequences of leaving the heater on.

(5) The B Heaters are connected to the same RPCM as MDM N1-2. The MDM failure malfunction will be worked in that case. The A Heaters are not connected to the same RPCM as MDM N1-2; therefore, it is possible that the heater configuration problem could be detected before the RPCM failure.

(6) A transient cold environment could require both B and A heaters to keep temperatures within limits. A heater pad debonding failure could also be the culprit in this case. If all B(A) temperatures do not appear to be rising properly, the failure could be in the EVA cable/connectors P672/J672 (B Heaters) or P666/J666 (A Heaters).

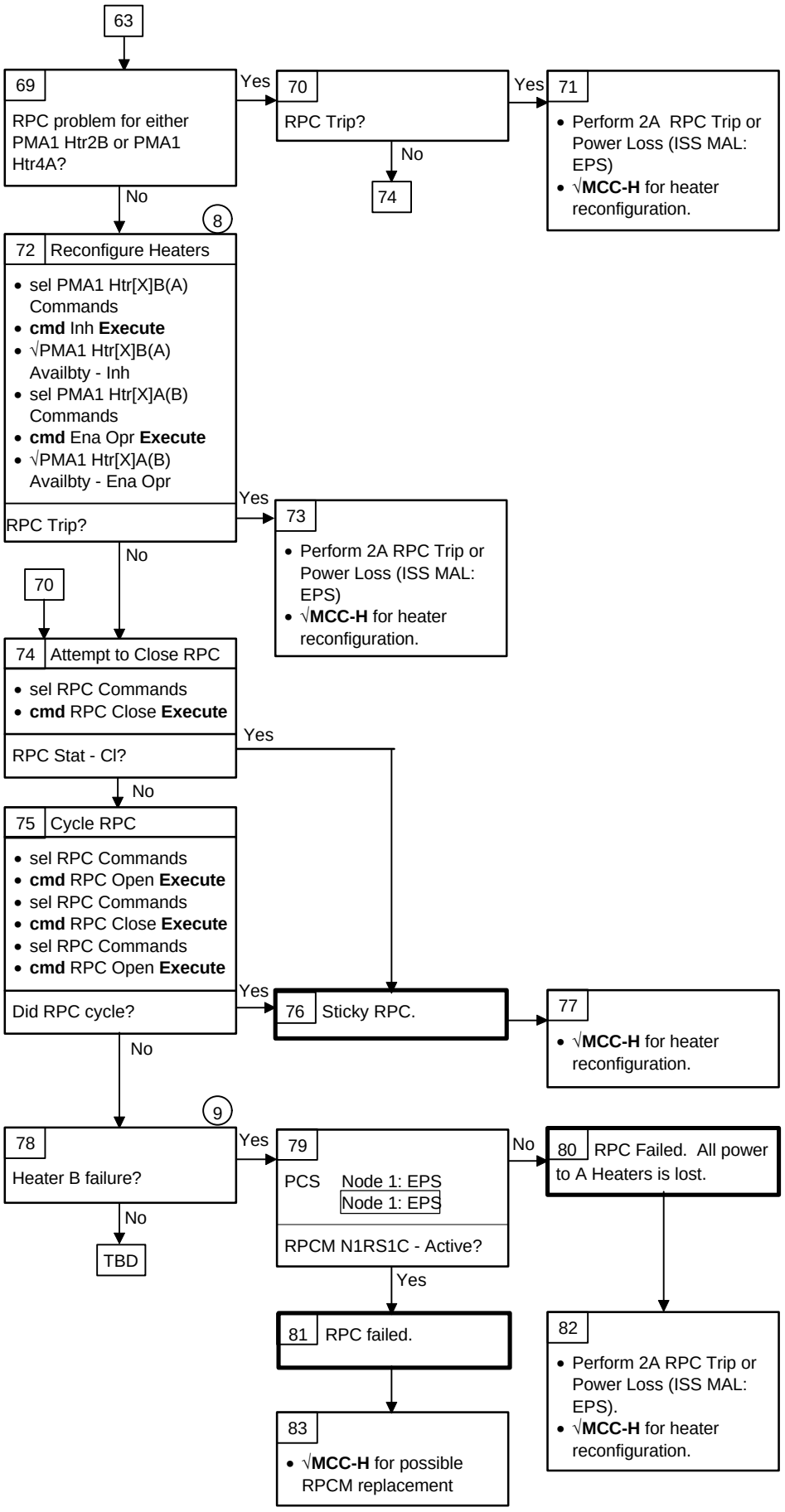
PMA 1 SHELL HEATER FAILURE (Cont)



7

Since the RPC has tripped once, it will not be used again unless necessary.

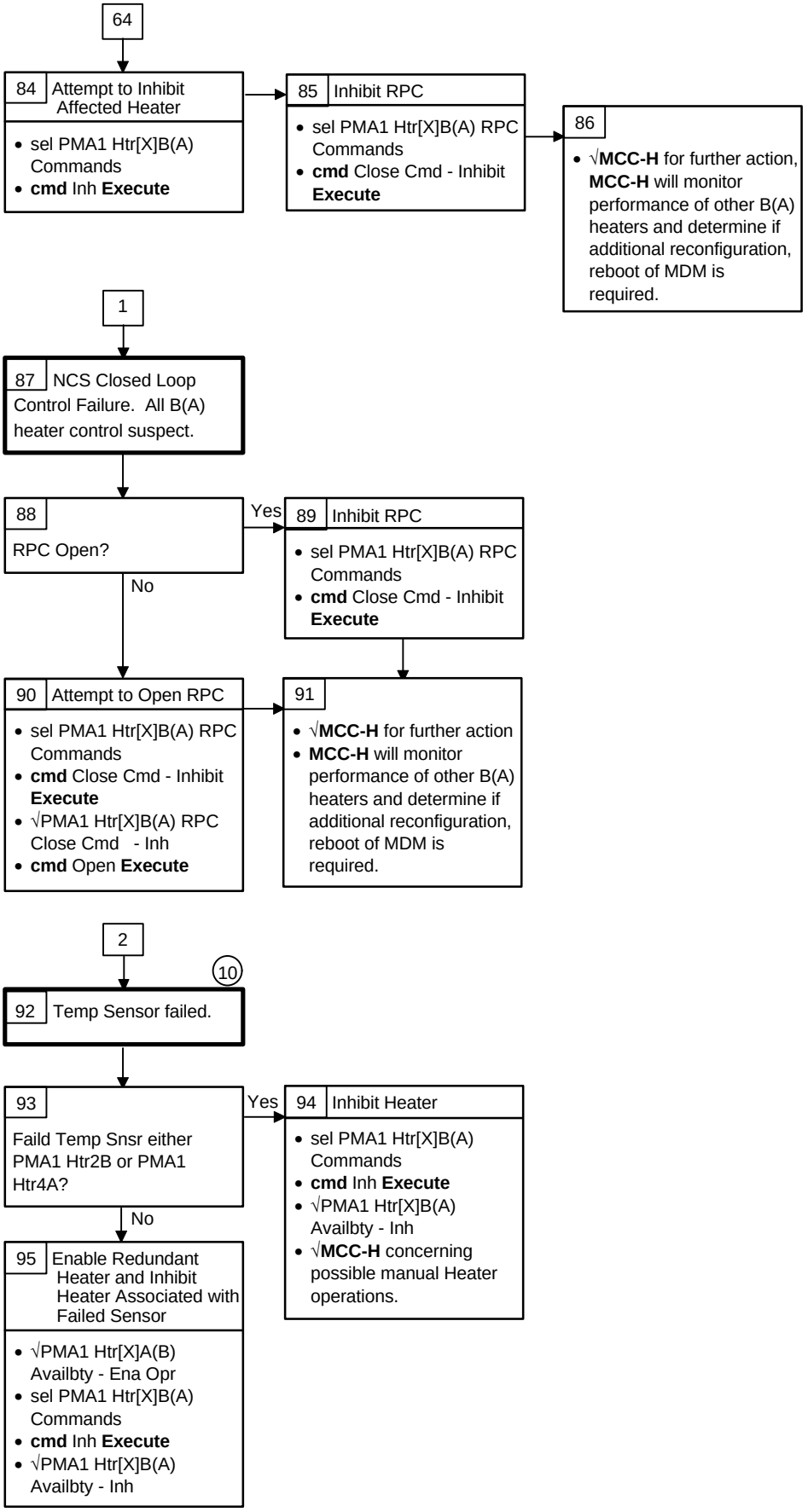
PMA 1 SHELL HEATER FAILURE (Cont)



(8) Since the shell is in a cold condition, the back-up heater should be enabled.

(9) The B Heaters are connected to the same RPCM as MDM N1-2. The MDM failure malfunction will be worked in that case. The A Heaters are not connected to the same RPCM as MDM N1-1; therefore, it is possible that the heater configuration problem could be detected before the RPCM failure.

PMA 1 SHELL HEATER FAILURE (Cont)



(10) Temperature sensor has failed its range check. Temperature is either higher than +400°C or lower than -350°C. Software will command the heater off (default state).